

**Patent claims**

1. An antibody against VASP (vasodilator-stimulated phosphoprotein), which only binds VASP as antigen when VASP is present in phosphorylated form.  
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2. An antibody as claimed in claim 1, which can be used for determining the phosphorylation status of VASP in biological material.  
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3. An antibody as claimed in claim 1 and/or 2, which enables the phosphorylation of VASP in biological material to be determined quantitatively.
- 15 4. An antibody as claimed in one or more of claims 1-3, wherein VASP is only bound as antigen when VASP is phosphorylated at position serine 239 (phosphoserine 239 VASP).
- 20 5. An antibody as claimed in one or more of claims 1-3, wherein VASP is only bound as antigen when VASP is phosphorylated at position serine 157 (phosphoserine 157 VASP).
- 25 6. An antibody as claimed in one or more of claims 1-5, which can be used in the Western blotting technique.
7. An antibody as claimed in one or more of claims 1-5, which can be used in flow cytometry.
- 30 8. An antibody as claimed in one or more of claims 1-7, which is a polyclonal antibody.

9. An antibody as claimed in one or more of claims 1-7, which is a monoclonal antibody (Mab) or its fragments.
10. A monoclonal antibody as claimed in claim 9, which is produced by  
5 the hybridoma cell line 16C2.
11. A monoclonal antibody as claimed in claim 9 and/or 10, which is the Mab 16C2.
- 10 12. A hybridoma cell line, which produces a monoclonal antibody as claimed in one or more of claims 9-11.
13. The hybridoma cell line 16C2, which produces the monoclonal antibody 16C2 (DSM ACC2330).
- 15 14. The use of an antibody as claimed in one or more of claims 1-11 as a therapeutic agent.
- 15 15. The use of an antibody as claimed in one or more of claims 1-11 as  
20 a diagnostic agent.
16. The use of an antibody as claimed in claim 15 for qualitatively and/or quantitatively determining the phosphorylation of VASP in biological material.
- 25 17. The use of an antibody as claimed in claim 15 for qualitatively and/or quantitatively determining phosphoserine 239 VASP or phosphoserine 157 VASP in biological material.
- 30 18. The use of an antibody as claimed in one or more of claims 15-17, wherein the biological material is human thrombocytes or human

whole blood.

19. The use of an antibody as claimed in one or more of claims 15-18  
for detecting substances which affect the level of cGMP and/or  
cAMP in biological material.  
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20. The use of an antibody as claimed in one or more of claims 15-19  
for determining the in-vivo activity of endothelial factors.
- 10 21. The use of an antibody as claimed in one or more of claims 15-20  
for detecting an endothelial dysfunction.
- 15 22. A diagnostic or therapeutic process, which comprises using  
polyclonal or monoclonal antibodies, or their fragments, to  
determine or influence the phosphorylation status of VASP, and/or  
its protein interactions, in biological material.
- 20 23. A diagnostic process for qualitatively and/or quantitatively detecting  
VASP, which is phosphorylated at least at one of the positions  
serine 157, serine 239 and threonine 278, in biological material,  
which comprises using antibodies as claimed in one or more of  
claims 1-11.
- 25 24. The diagnostic process as claimed in claim 23, wherein VASP is  
phosphorylated at position serine 239 (phosphoserine 239 VASP).